CLAIMS

What is claimed is:

1. An intervertebral spacer device, comprising:

a first baseplate, having an outwardly facing surface and an inwardly facing surface, the inwardly facing surface having a central post extending therefrom, the post having a longitudinal axis and a head end that is inwardly directed toward the second baseplate;

a second baseplate, having an outwardly facing surface and an inwardly facing surface, the second baseplate's inwardly facing surface having a curvate pocket formed by a central portion of the second baseplate's inwardly facing surface concaving outwardly to define a semispherical contour;

a convex structure having an outwardly facing surface and an inwardly facing surface, the convex structure further having a central bore extending from the convex structure's inwardly facing surface to the convex structure's outwardly facing surface, the convex structure's central bore having an opening on the convex structure's outwardly facing surface that is surrounded by a curvate taper defining a semispherical contour, the convex structure further having a protrusion adjacent the curvate taper; and

a ball defining a spherical contour, the ball having a curvate recess and a central bore; wherein

the ball is seatable in the curvate pocket; and wherein

the convex structure's outwardly facing surface is securable to the second baseplate, the securing of the convex structure to the second baseplate establishing a curvate socket formed by the second baseplate's curvate pocket and the convex structure's curvate taper, the curvate socket defining a spherical contour, into which curvate socket the convex structure's protrusion extends; and wherein

the ball is thereby capturable in the curvate socket, with the curvate socket's spherical contour accommodating the ball's spherical contour for rotation and angulation of the ball in the curvate socket about a central portion of the ball, and with the ball's curvate recess accommodating the convex structure's protrusion to limit rotation of the ball in the curvate socket; and wherein

the post is disposable through the convex structure's central bore and the post's head

end is securable to the ball's central bore, such that the post is accommodated for rotation in the convex structure's central bore about the post's longitudinal axis as the ball rotates in the curvate socket, and such that the post is accommodated for angulation in the convex structure's central bore about the ball's central portion as the ball angulates in the curvate socket; and wherein

the second baseplate includes a first part having the inwardly facing surface having the curvate pocket of the second baseplate, and a second part having the outwardly facing surface; and further comprising

a spring member disposed between the first part and the second part such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

2. The intervertebral spacer device of claim 1, wherein the ball's curvate recess has boundaries that define limits of rotation of the ball within the curvate socket in that the ball's rotation within the curvate socket is limited by interference between the convex structure's protrusion and the boundaries.

3. The intervertebral spacer device of claim 2, wherein the ball's curvate recess's boundaries accommodate angulation of the ball within the curvate socket.

4. The intervertebral spacer device of claim 1, wherein each of the inwardly facing surface of the first baseplate and the inwardly facing surface of the convex structure has a respective perimeter region, and the perimeter regions have corresponding contours that reduce surface wearing during rotation and angulation of the ball in the curvate socket.

5. The intervertebral spacer device of claim 1, wherein the second part of the second baseplate travels toward the first part of the second baseplate as the spring member compresses under the compressive load.

6. The intervertebral spacer device of claim 1, wherein the spring member is ring-shaped.

7. The intervertebral spacer device of claim 1, wherein the convex structure's central bore is tapered to a larger diameter toward the convex structure's inwardly facing surface, and the post is accommodated, by the convex structure's central bore being tapered, for angulation in the convex structure's central bore about the ball's central portion as the ball angulates in the socket.

8. The intervertebral spacer device of claim 1, wherein at least one of the curvate pocket and the curvate taper has a hemispherical contour.

9. The intervertebral spacer device of claim 1, wherein at least one of the baseplates has a domed vertebral body contact surface on its outwardly facing surface.

10. The intervertebral spacer device of claim 1, wherein the post's head end is compression lockable into the ball's central bore.

11. The intervertebral spacer device of claim 1, wherein the convex structure's protrusion has a radius of curvature, and the ball's curvate recess has a semicylindrical contour having a depth accommodating, and a radius of curvature greater than, the protrusion's radius of curvature.

12. An intervertebral spacer device, comprising:

a first baseplate, having an outwardly facing surface and an inwardly facing surface, the inwardly facing surface having a central post extending therefrom, the post having a longitudinal axis and a ball at a head end of the post that is inwardly directed toward the second baseplate, the ball defining a spherical contour and having a curvate recess;

a second baseplate, having an outwardly facing surface and an inwardly facing surface, the second baseplate having a convex structure establishing a curvate socket communicating with a central bore through the convex structure, the curvate socket defining a spherical contour, the convex structure further having a protrusion extending into the curvate socket; wherein

the ball is capturable in the curvate socket, with the curvate socket's spherical contour accommodating the ball's spherical contour for rotation and angulation of the ball in the curvate

socket about a central portion of the ball;

with the ball's curvate recess accommodating the convex structure's protrusion to limit rotation of the ball in the curvate socket;

with the convex structure's central bore accommodating the post for rotation in the convex structure's central bore about the post's longitudinal axis as the ball rotates in the curvate socket, and accommodating the post for angulation in the convex structure's central bore about the ball's central portion as the ball angulates in the curvate socket; and further comprising

a spring member housed by the second baseplate such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

13. The intervertebral spacer device of claim 12, wherein the ball's curvate recess has boundaries that define limits of rotation of the ball within the curvate socket in that the ball's rotation within the curvate socket is limited by interference between the convex structure's protrusion and the boundaries.

14. The intervertebral spacer device of claim 13, wherein the ball's curvate recess's boundaries accommodate angulation of the ball within the curvate socket.

15. The intervertebral spacer device of claim 12, wherein each of the first baseplate and the convex structure has a respective inwardly facing perimeter region, and the perimeter regions have corresponding contours that reduce surface wearing during rotation and angulation of the ball in the curvate socket.

16. The intervertebral spacer device of claim 12, wherein the convex structure's central bore is tapered to a larger diameter toward the first baseplate, and the post is accommodated, by the convex structure's central bore being tapered, for angulation in the convex structure's central bore about the ball's central portion as the ball angulates in the curvate socket.

17. The intervertebral spacer device of claim 12, wherein at least one of the baseplates has a domed vertebral body contact surface on its outwardly facing surface.

18. The intervertebral spacer device of claim 12, wherein the convex structure's protrusion has a radius of curvature, and the ball's curvate recess has a semicylindrical contour having a depth accommodating, and a radius of curvature greater than, the protrusion's radius of curvature.

19. An artificial intervertebral disc, comprising:

a first baseplate, having an outwardly facing surface and an inwardly facing surface having a central post extending therefrom, the post having a longitudinal axis and a head end that is inwardly directed toward the second baseplate;

a second baseplate, having an outwardly facing surface and an inwardly facing surface having a curvate pocket formed by a central portion of the second baseplate's inwardly facing surface concaving outwardly to define a semispherical contour;

a convex structure having an outwardly facing surface and an inwardly facing surface, the convex structure further having a central bore extending from the convex structure's inwardly facing surface to the convex structure's outwardly facing surface, the central bore being tapered to a larger diameter toward the convex structure's inwardly facing surface and having an opening on the convex structure's outwardly facing surface that is surrounded by a curvate taper defining a semispherical contour, the convex structure further having a protrusion adjacent the curvate taper; and

a ball defining a spherical contour, the ball having a curvate recess having boundaries, the ball further having a central bore; wherein

the ball is seatable in the curvate pocket; and wherein

the convex structure's outwardly facing surface is securable to the second baseplate, the securing of the convex structure to the second baseplate establishing a curvate socket formed by the second baseplate's curvate pocket and the convex structure's curvate taper, the curvate socket defining a spherical contour, into which curvate socket the convex structure's protrusion extends; and wherein

the ball is thereby capturable in the curvate socket, with the curvate socket's spherical contour accommodating the ball's spherical contour for rotation and angulation of the ball in the curvate socket about a central portion of the ball, and with the ball's curvate recess accommodating the convex structure's protrusion such that the ball's curvate recess's

boundaries define limits of rotation of the ball within the curvate socket in that the ball's rotation within the curvate socket is limited by interference between the protrusion and the boundaries, and such that the boundaries accommodate angulation of the ball within the curvate socket; and wherein

the post is disposable through the convex structure's central bore and the post's head end is securable to the ball's central bore, such that the post is accommodated for rotation in the convex structure's central bore about the post's longitudinal axis as the ball rotates in the curvate socket, and such that the post is accommodated, by the convex structure's central bore being tapered, for angulation therein about the ball's central portion, as the ball angulates in the curvate socket; and wherein

the second baseplate includes a first part having the inwardly facing surface having the curvate pocket of the second baseplate, and a second part having the outwardly facing surface; and further comprising

a spring member disposed between the first part and the second part such that a compressive load applied to the outwardly facing surfaces of the baseplates is borne by the spring member.

20. The artificial intervertebral disc of claim 19, wherein each of the inwardly facing surface of the first baseplate and the inwardly facing surface of the convex structure has a respective perimeter region, and the ball's curvate recess's boundaries accommodate angulation of the ball within the curvate socket at least until the perimeter regions meet, and the post is accommodated, by the convex structure's central bore being tapered, for angulation in the convex structure's central bore about the ball's central portion, as the ball angulates in the curvate socket, at least until the perimeter regions meet.